

REMARKS

Claims 85-86 have been withdrawn. Claims 1-84 are currently examined in this application.

Claims 1-7, 9 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,534,711 to Ovshinsky et al. ("Ovshinsky") in view of U.S. Patent No. 4,818,357 to Case et al. ("Case"). The rejection is respectfully traversed.

Claim 1 recites: "maintaining [the] silver selenide target at a temperature of less than about 350° C during [the] sputtering process to form a silver selenide film which comprises both alpha silver selenide and beta silver selenide." As explained in the specification at ¶0048:

Silver selenide (e.g. Ag₂Se) is well known for its low temperature phase transition point of 406 K (about 130° C.). At temperatures below 406 K, Ag₂Se forms an orthorhombic structure, known as the "beta phase." At temperatures above 406 K (about 133° C.), Ag₂Se undergoes a structural change in which the Se forms a body-centered cubic sublattice, while the Ag undergoes a melting transition. In this so-called "alpha phase" or "superionic phase," the Ag ions exhibit liquid-like diffusion.

Ovshinsky is cited for teaching the formation of a memory device including a memory material. Ovshinsky notes that the memory material can be sputtered in a process where the substrate is at a temperature ranging from ambient temperature to 300° C. Ovshinsky at Table 2. Ovshinsky discloses that the memory material can be any number of materials, preferably including at least one chalcogen element and may include at least one transition metal element. Ovshinsky at col. 14, line 60 to col. 15, line 2. Ovshinsky does not state a target temperature nor that silver selenide is a suitable memory material, much less that silver selenide is formed in both the alpha and beta phases.

The Office Action relies on Case for teaching a sputtering process that maintains a certain target temperature. Office Action at page 4. Case, however, relates to a method for sputter

deposition to form homojunctions, particularly photovoltaically active semiconductor homojunctions. Case at col. 2, lines 52-68. Case is not concerned with forming memory devices as Ovshinsky is and like Ovshinsky is silent about forming silver selenide in both the alpha and beta phases.

The Office Action has selected a single process parameter from Case's method for combination with Ovshinsky. Specifically, the Office Action cites Case for disclosing "the target [being] kept at 50 degrees Centigrade." The Office Action ignores that Case further discloses heating the "substrate...to 450 degrees Centigrade plus or minus 20 degrees Centigrade ... to provide enough thermal activity to the deposited atoms to ensure proper interatomic bonding." Case at col. 9, lines 38-45. At this temperature it will be impossible for the silver selenide to form in the beta phase – it will instantly transition to the alpha phase upon contact with the substrate, which is heated far above the transition temperature. Thus, Case, taken as a whole, teaches away from the method of claim 1.

Furthermore, one skilled in the art would not be motivated to modify Case's sputter process with the substrate temperature parameters set forth in Ovshinsky. Case states that the substrate is kept at 450°C +/- 20 degrees in order "to provide enough thermal activity to the deposited atoms to ensure proper interatomic bonding." Case at col. 9, lines 41-45. Since Case's process is directed at forming homojunctions, modifying Case as suggested in the Office Action would render Case's process inoperable for its intended purpose. See MPEP § 2143.01(V), (VI) (noting that the proposed modification can not render the prior art unsatisfactory for its intended purpose or change the principle operation of the reference).

The Office Action has used improper hindsight to selectively combine elements of Ovshinsky and Case. "[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). Therefore, the Ovshinsky and Case combination does not render obvious claim 1.

In addition, the Office Action also misapplies the inherency doctrine. The Office Action states that because Ovshinsky notes that a memory material can be sputtered onto a substrate that is at a temperature between ambient temperature to 300° C, Ovshinsky suggests forming both alpha and beta silver selenide. Office Action at 3. Obviousness, however, cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established. *In re Rijckaert*, 9 F.2d 1531 (Fed.Cir. 1993). All of the cited references are silent about alpha and beta silver selenide, none recognize any advantage of forming both alpha and beta silver selenide and the Office Action fails to provide any evidence that any advantage was known to those skilled in the art at the time the application was filed. Thus, the Office Action has also failed to establish the obviousness of “a silver selenide film which comprises both alpha silver selenide and beta silver selenide,” as recited by claim 1 and other claims.

Claims 2-7, 9 and 12 depend from claim 1 and are allowable over the combination of Ovshinsky and Case along with claim 1 for at least the reasons provided above as well as on their own merits. Accordingly, Applicants respectfully request the rejection be withdrawn and the claims allowed.

Independent claims 13, 17, 25, 28, 31, 34, 43, 45, 50, 60, 77 and 81 recite similar limitations to the above-described limitation of claim 1. All of these claims stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ovshinsky in view of Case and, in some instances, in further view of various other references. None of the references cure the above identified deficiencies of Ovshinsky and Case. Independent claims 13, 17, 25, 28, 31, 34, 43, 45, 50, 60, 77 and 81, and the claims depending therefrom, are therefore allowable over Ovshinsky and Case, even if combined with the other cited references. Accordingly, Applicants respectfully request the rejection be withdrawn and the claims allowed.

Claims 1-84 stand rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-56 of U.S. Patent No. 7,364,644. Since the claims of this application are subject to change, Applicants respectfully request that the double patenting rejection be held in abeyance until the rejections based on the prior art have been overcome.

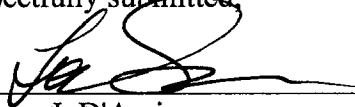
Application No. 10/712,106
Response dated March 2, 2009
Reply to Office Action of December 2, 2008

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In view of the above, Applicants believe the pending application is in condition for allowance.

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